

# MISSOURI CONSERVATIONIST

VOLUME 81, ISSUE 6, JUNE 2020  
SERVING NATURE & YOU





# KEEP WILD ANIMALS WILD



City or countryside, Missouri's wild animals are your neighbors, and finding a young animal alone doesn't mean it needs help. In spring and early summer, rabbits and other wild animals are sometimes left alone for long periods while their parents look for food. If you see young wildlife in the outdoors, don't assume it is abandoned or hurt.

## LEAVE YOUNG WILDLIFE ALONE.

If you believe an animal is in distress, notify the closest Missouri Department of Conservation office.

**[MissouriConservation.org](http://MissouriConservation.org)**



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Black trumpet mushroom

## MISSOURI CONSERVATIONIST



### ON THE COVER

Blue dasher dragonfly

📷 **NOPPADOL PAOTHONG**

180mm macro lens, f/6.3  
1/320 sec, ISO 800

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## MORELS AND FISH

We loved reading this issue [April]. We go mushroom hunting during the spring and fall. My daughter was excited to see the article [Spring Trifecta, Page 10] and to see other people enjoying morels and fish.

Maria Amjed  
via email

## MISSOURI ORCHIDS

Thank you for featuring Missouri's beautiful orchids in the April issue [Missouri Orchids, Page 16]. Such refreshing reading while we are staying at home during the coronavirus pandemic. We have this beautiful magazine to enjoy, and the parks will still be there when it's safe to gather again.

Andrea Britton St. Louis

I loved the quality writing in April's *Missouri Orchids*. It was insightful and informative with great images, and just a delight to read.

My dad always had stacks of the *Missouri Conservationist* in my childhood home, and I remember it being incorporated into my middle school science class curriculum.

I'm 30 now and this past year I started my own subscription. Every month, I save my copy to read on any given gray Sunday morning. Starting the day with a cup of coffee, reading about Missouri bats and trout fishing, really helps me feel at home.

Anna Youngyeun via email

## SCHOOLING WITH THE CONSERVATIONIST

With the sudden closure of public schools in March, I was left in a brief panic, wondering how to educate my three children. Then I remembered the burrowing crayfish article in the March issue [Burrowing Crayfish, Page 10]. We had previously seen mud chimneys along a creek, but weren't sure what they were. The article saved the week until the school could make a plan. There was reading the article, walking the creek, observing the crayfish, and writing their findings.

The Missouri Department of Conservation and the *Missouri Conservationist* are terrific assets to our state.

Sarah Davis Buchanan County



Showy lady's slipper, grass pink, showy orchis

## APPRECIATING LOCAL NATURE

The April *Up Front* by Sara Parker Pauley [Page 3] has had me thinking about howler monkeys and northern cardinals. How lucky Ms. Pauley was to experience the trip to Costa Rica. A comment from her nature guide saying his life's dream was to see a northern cardinal made me realize how fortunate we are here in Missouri to experience them every day.

Thanks for opening my eyes to a beautiful bird we take for granted and forget to admire.

Ramona Allen Sedalia

## STOPPING THE INVASION

The day after reading *Invasive Species: Missouri's Least Wanted* in the April issue [Page 8], I cut down 10 burning bushes growing on the side of our house.

I am writing to thank you for not only educating us on how we can do our part to help our environment, but also to say that your article may have saved our home from a fire. Removal of the burning bushes revealed our exterior dryer vent. It was almost fully clogged with lint. Just noticed that "burning" bushes may have saved our home from burning!

Laura Swindle via email

## CERTAIN MAGAZINE IN UNCERTAIN TIMES

You put together one terrific issue after another — from Danny Brown's *St. Louis: Where Birds of Prey Abound* [November, Page 18] to Isabeau Dasho and Bob DiStefano's *Burrowing Crayfish* [March, Page 10]. Wonderful photography, wonderful information. In these uncertain times, I hope you keep publishing this wonderful magazine.

Susan Clauss St. Louis

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on your Instagram photos.



1

1 | Greensnake by  
ashtonsmith7124,  
via Instagram

2 | Wilson's  
warbler by  
Bill Michalski,  
via Flickr

3 | Kayak  
fishing trip by  
Megan Michael,  
via email



2



3

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# Up Front

with Sara Parker Pauley

✱ The end of turkey season is always bittersweet. The time in the spring woods is truly magical and provides much needed quiet time, but I will not miss the jarring buzz of an alarm clock at 0-dark-thirty each morning. Amid the COVID chaos, I was hungry for time away, both to chase turkeys and to use the quiet to contemplate what this pandemic means for humanity and for the resources the department is charged to steward.

Winston Churchill remarked, "It is not given to human beings — happily for them, for otherwise life would be intolerable — to foresee or to predict to any large extent the unfolding course of events." It may be merciful to be protected from an exact picture of what is to come, and yet our citizens expect the department to prepare for future threats to our fish and wildlife, such as impacts from climate change, disappearing wildlife habitat, and emerging wildlife diseases.

Ralph Waldo Emerson said, "The first wealth is health." I would agree, but with this refinement, that it is the health of all things — people, animals, lands, and waters — as we are all codependent on the other. When one of these foundational pillars fail, we now know more than ever that the whole is compromised.

A friend made this connection: COVID-19 reminds us that we are all dependent on the ecosystem, that we have let things slip and that we have a choice about what tomorrow will look like.

May we choose wisely.

*Sara Parker Pauley*

**SARA PARKER PAULEY, DIRECTOR**  
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Printed with soy ink



# Nature LAB

by Bonnie Chasteen

Each month, we highlight research MDC uses to improve fish, forest, and wildlife management.

## FOREST MANAGEMENT

### Indiana Bat Conservation

✳ MDC Resource Scientist Kathryn Bulliner held a juvenile Indiana bat up to her headlamp to check it for the tell-tale signs of white-nose syndrome (WNS) — a powdery white fungus along the young bat's muzzle and wings.

"This disease is killing bats throughout North America, including federally endangered Indiana bats," she said.

In 2019, Bulliner began field work with a team of research partners to determine if current forest management practices meet the Indiana bat's summer habitat needs. "Indiana bats spend their winters hibernating in caves and mines, many of which are infected with the WNS fungus," she said, "But in summer, they migrate to upland forests like those here in north-central and northeast Missouri."

Bulliner said the U.S. Fish and Wildlife Service has restrictive guidance for timber harvest in areas where Indiana bats are known to summer. "For years



Researchers collect a small blood sample from a captured Indiana bat.

Eight-year study tests guidelines for managing summer habitat for endangered bats

the service and other conservation partners have wanted to test the effects of these forest practices on Indiana bats," she said. "Knowing what works and what doesn't will help managers plan and conduct their forest management practices with more confidence. And, of course, their efforts will be better for the bats, which need the best summer habitat we can provide."

Bulliner said researchers believe that good summer habitat can strengthen Indiana bats against the pressures of WNS during hibernation, thereby supporting the endangered species' overall restoration efforts.

At selected Missouri conservation areas, Bulliner's team is using several different sampling techniques to measure Indiana bat response to forest management.

"By assessing various metrics over the entire course of the eight-year study, we will directly assess colony persistence relative to management activities," Bulliner said.

## Indiana Bats and Forest Habitat Management at a Glance

Partners: Indiana State University, Missouri Department of Conservation, U.S. Fish and Wildlife Service, University of Missouri

### The Challenge

Assess bats' response to forest-management on three pairs of conservation areas: Rebel's Cove and Mineral Hills; Indian Hills and Atlanta; Charlie Heath and Hidden Hollow

### Timeline

2019-2021 Pre-treatment assessment of bat populations and habitat use  
2022-2024 Prescribed forest management treatments  
2025-2027 Post-treatment assessment

### Assessing Bat Populations and Habitat Use

- Acoustic detectors measure Indiana bat presence and habitat-use patterns as well as relative abundance throughout the summer maternity season
- Radio transmitters track female bats to roosts
- Simultaneous exit counts track bats at roosts
- Measure health parameters of adult females and young

### Anticipated Benefits

Results will validate or improve forest management guidelines for maternal Indiana bat colonies throughout the 22-state range





# In Brief

News and updates from MDC



## STAY HEALTHY WHILE IN NATURE

TAKE SAFETY  
RECOMMENDATIONS  
WITH YOU ON  
OUTDOOR  
ADVENTURES

➔ With the current public-health emergency caused by COVID-19, MDC reminds people to continue hand washing, physical distancing, and all other public-health measures during outdoor activities. We advise people to make outdoor activities as safe and enjoyable as possible by taking the following actions:

- If you have been sick in the last two weeks, stay home for your health and the safety of others.
- Travel in a group of 10 or fewer.
- If a conservation area looks crowded or an area parking lot is full, please do not stop. Find another less-crowded location.
- Keep a proper physical distance of at least 6 feet while visiting areas, especially on trails.
- Avoid popular spots where people congregate, such as scenic overlooks, fishing docks, etc.
- Pack water, soap, and/or hand sanitizer.
- Get more information on best practices for keeping you and your family safe from the Centers for Disease Control and Prevention at [cdc.gov/coronavirus/2019-ncov](https://www.cdc.gov/coronavirus/2019-ncov).

Visit our COVID-19 webpage for updates on facility and office closures, cancellations, hunting and fishing seasons, and general information on public-health measures while in the outdoors at [short.mdc.mo.gov/Zhi](https://short.mdc.mo.gov/Zhi).

## FREE FISHING DAYS

Want some free fun that gets family and friends outside in nature? Get hooked on fishing with our Free Fishing Days June 6 and 7. During Free Fishing Days, anyone can fish in the Show-Me State without buying a fishing permit, trout permit, or trout park daily tag.

Other fishing regulations remain in effect, such as limits on size and number of fish an angler may keep. Special permits may still be required at some county, city, or private fishing areas. Trespass laws also remain in effect on private property.

Conservation makes Missouri a great place to fish, and Free Fishing Days encourages people to sample the state's abundant fishing opportunities. Missouri has more than a million acres of surface water, and most of it provides great fishing for the state's more than 1.1 million anglers. More than 200 different fish species are found in Missouri, and more than 20 of them are game fish.

For information on Missouri fishing regulations, fish identification, and more, get a copy of MDC's *2020 Summary of Missouri Fishing Regulations* where permits are sold or online at [short.mdc.mo.gov/Zq3](http://short.mdc.mo.gov/Zq3).

## GIVE TURTLES A BRAKE

MDC encourages drivers to be cautious on the roads this spring. Turtles emerge from their burrows and begin hunting for food and mates during warm and wet conditions, which can lead them to cross roadways, oftentimes resulting in their death. Thousands of box turtles are killed every year by vehicles. Common turtles spotted crossing Missouri roads include three-toed box turtles, ornate box turtles, and snapping turtles.

Young males make up most of the travelers, sometimes wandering as many as 6 miles searching for territories and mates. Females are also crossing the roads in search of nesting areas.

Turtles are cold-blooded creatures and depend on external sources of heat to determine their body temperature. This explains why people see them on warm asphalt during cool, spring days.

If helping a turtle make it safely across the road, check for traffic and move the turtle in the direction it is traveling.

Additionally, we encourage Missourians to leave turtles in the wild. Taking a wild animal, whether a turtle or other wildlife species, and keeping it as a pet normally ends in a slow death.

Most Missouri turtles can live up to 30 years, but the common box turtle can live up to 80, occasionally living more than a century. For more information on Missouri's turtles, visit our online *Field Guide* at [short.mdc.mo.gov/Zi4](http://short.mdc.mo.gov/Zi4).



Ornate box turtle

# Ask MDC

## Got a Question for Ask MDC?

Send it to [AskMDC@mdc.mo.gov](mailto:AskMDC@mdc.mo.gov) or call 573-522-4115, ext. 3848.

### Q: Could you tell me what kind of beetle this is?

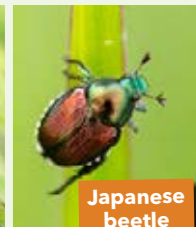
➔ One of the brightest beetles in its family, the dogbane beetle (*Chrysochus auratus*) attracts the eye with an iridescent blue-green shimmer and a metallic copper-gold shine. Scientists speculate the phenomenon, called "structural coloration," may have evolved in insects as camouflage to mimic the appearance of raindrops or as a method to send mating signals over longer distances.

This beetle's exoskeleton is made of chitin, a transparent substance that allows small fissures to refract the light like a prism, creating the blues and greens we admire. This beetle is named for its diet, which consists of dogbane, a small genus in the flowering plant family, *Apocynaceae*. The word is derived from ancient Greek terms meaning "away" and "dog," since these plants were once used to poison dogs. Dogbane beetles also eat milkweed.

Though similar in appearance with its metallic green thorax, the Japanese beetle should not be confused with the dogbane beetle. The Japanese beetle, a serious agricultural pest, is slightly larger than the dogbane beetle at more than half an inch.



Dogbane beetle



Japanese beetle

### Q: What is the optimal time to cut hay for cattle feed, versus when grassland birds are finished nesting?

➔ In a normal year, most grassland birds finish nesting by July 15, except for quail, which attempt nesting through September. For farmers and ranchers, the best time to cut hay is late May or early June, when the protein content of fescue and brome is at its peak. To counteract early haying, conservationists promote the use of native, warm-season grasses, which typically are not harvested until most birds have finished nesting.

The benefits of native grass hayfields are ease of maintenance, dependable production, and the ability to harvest during a normal lull in farming operations. A stand of native grasses, seeded with a legume, will produce a consistent 2 to 3 tons of hay per acre when harvested in July. Since the hay is harvested after crops have been planted and cool-season grasses have





Eastern collared lizard

slowed growth, native hayfields help to reduce the spring rush of field work.

**Q: I photographed this eastern collared lizard in St. Francois County. How is this species faring in Missouri?**

→ Eastern collared lizards (*Crotaphytus collaris*) are stable across their range, but are considered a species of conservation concern in Missouri.

Collared lizards were once widespread on glades in Missouri, but due to reduced fire frequency, resulting in changes in vegetation on the glades, lizard populations became isolated. By the 1980s,

lizards were rapidly disappearing from Missouri, according to Missouri State Herpetologist Jeff Briggler.

In response to these declines, MDC began restoring the glades to their original open nature. Many cedar trees were removed, and periodic fires were set to maintain the open, rocky habitat on which the lizard depends.

Once the habitat was restored, faculty and students at Washington University, St. Louis, worked with MDC biologists to relocate lizards to the glades. With ongoing management, the eastern collared lizard is thriving and will be part of Missouri's biodiversity for generations to come.



## Corporal Kearby Bridges

STONE COUNTY  
CONSERVATION AGENT

*offers this month's*

# AGENT ADVICE

This spring, the Missouri outdoors saw a surge in use. Missourians visited public and private lands for relief from pandemic stress and isolation. During times of heightened use, we all have a responsibility to be ethical stewards of the outdoors. Take all trash with you or use receptacles where available. Minimize noise. Never trespass onto private land — know your whereabouts and have permission to be on private property. Follow all regulations pertaining to conservation areas. It is your responsibility to know the rules of the area you're using. Our public and private lands depend on all of us to maintain their integrity. Know before you go. Visit [mdc.mo.gov](http://mdc.mo.gov) for more information.

## What IS it?

Can you  
guess this  
month's  
natural  
wonder?

*The answer is on  
Page 8.*







# CATFISH TACOS

Catfish is one of the most sought-after fish in Missouri. In fact, this highly prized game and food fish was named the state's official fish in 1997. Although catfish is wonderful fried, this recipe offers a different preparation, with a south of the border flare.

Serves 4-6

### INGREDIENTS:

1 pound catfish fillets  
2 garlic cloves, minced  
3 tablespoons fresh lime juice  
Salt and coarsely ground pepper  
4 to 6 6-inch corn tortillas  
2 cups chopped Romaine lettuce  
1 avocado, cubed  
¼ cup feta cheese, crumbled

**PLACE** fish on lightly oiled, rimmed baking sheet. Mix garlic and lime juice and drizzle mixture over fish. Sprinkle with salt and pepper and let stand 15 minutes.

**BROIL** fish in oven (you also may grill it) until opaque in center, 6 to 8 minutes. While fish is cooking, warm tortillas directly on a burner over lowest heat, turning once, until heated through. Watch carefully; the first side needs only 20 seconds or so, and the second side even less time. Alternatively, you may heat tortillas in a pan. Keep them warm in a tortilla basket lined with a cloth towel or napkin.

**CUT** fish into 1-inch pieces. Top each tortilla with lettuce, then fish. Drizzle with salsa and top with avocado and cheese.



This recipe is from *Cooking Wild in Missouri* by Bernadette Dryden, available for \$16 at [mdcnatureshop.com](http://mdcnatureshop.com).



## WHAT IS IT? WOOD NETTLE (STINGING NETTLE)

Wood nettle, commonly known as stinging nettle, grows in large, thick stands in forests, along streams, and other low, wet places. Referred to as a "nuisance to anyone tramping the wooded valleys in summer and autumn" by Missouri botanist Julian Steyermark, the hairs on this plant act like little syringes. Upon contact, they release toxins in the skin that cause burning and itching.





## MIGRATORY GAME BIRD AND WATERFOWL HUNTING SEASONS

Here are the details for Missouri's upcoming 2020 migratory game bird hunting seasons and 2020–2021 waterfowl hunting seasons.

### ✳ 2020 Migratory Game Bird Hunting

#### Mourning Doves, Eurasian Collared Doves, and White-Winged Doves

**Season:** Sept. 1–Nov. 29

**Limits:** 15 daily and 45 in possession combined total for all three species

**Hours:** One-half hour before sunrise to sunset

#### Sora and Virginia Rails

**Season:** Sept. 1–Nov. 9

**Limits:** 25 daily and 75 in possession combined for both species

**Hours:** One-half hour before sunrise to sunset

#### Wilson's (Common) Snipe

**Season:** Sept. 1–Dec. 16

**Limits:** 8 daily and 24 in possession

**Hours:** One-half hour before sunrise to sunset

#### American Woodcock

**Season:** Oct. 15–Nov. 28

**Limits:** 3 daily and 9 in possession

**Hours:** One-half hour before sunrise to sunset

### Nontoxic Shot Requirement

Shells possessed or used while hunting waterfowl and coots statewide, and for other species designated by posting on public areas, must be loaded with material approved as nontoxic by the U.S. Fish and Wildlife Service. Get more information on nontoxic-shot requirements, allowed types, and conservation areas requiring use at [short.mdc.mo.gov/Zgt](https://short.mdc.mo.gov/Zgt).

For more information on migratory bird and waterfowl hunting, visit [short.mdc.mo.gov/ZZn](https://short.mdc.mo.gov/ZZn) or refer to the *Migratory Bird and Waterfowl Hunting Digest 2020–2021*, available beginning in July where hunting permits are sold.

### ✳ 2020–2021 Waterfowl Hunting

#### Teal

**Season:** Sept. 12–27

**Limits:** 6 daily and 18 in possession

**Hours:** Sunrise to sunset

#### Ducks

**Season:**

- North Zone: Nov. 7–Jan. 5, 2021
- Middle Zone: Nov. 7–13 and Nov. 19–Jan. 10, 2021
- South Zone: Nov. 26–29 and Dec. 7–Jan. 31, 2021

**Bag Limit:** 6 ducks daily with species restrictions of:

- 4 mallards (no more than 2 females)
- 3 wood ducks
- 2 black ducks
- 2 canvasbacks
- 2 hooded mergansers
- 2 redheads
- New: 2 scaup for first 45 days and 1 scaup for last 15 days
- 1 mottled duck
- 1 pintail

**Possession Limit:** Three times the daily bag or 18 total, varies by species

**Hours:** One-half hour before sunrise to sunset

#### Coots

**Season:** Same as duck season dates in the respective zones

**Limits:** 15 daily and 45 in possession

**Hours:** One-half hour before sunrise to sunset

#### Snow Geese (White and Blue Phases) and Ross's Geese

**Season:** Nov. 11–Feb. 6, 2021

**Limits:** 20 blue, snow, or Ross's geese daily with no possession limit

**Hours:** One-half hour before sunrise to sunset

#### White-Fronted Geese

**Season:** Nov. 11–Feb. 6, 2021

**Limits:** 2 daily and 6 in possession

**Hours:** One-half hour before sunrise to sunset

### Hunting Zones

Missouri's waterfowl hunting zones are divided into North, Middle, and South. For a map and more information, visit [short.mdc.mo.gov/Zq8](https://short.mdc.mo.gov/Zq8).

#### Canada Geese and Brant

**Season:** Oct. 3–11 and Nov. 11–Feb. 6, 2021

**Limits:** 3 Canada geese and Brant in aggregate daily, 9 in possession

**Hours:** One-half hour before sunrise to sunset

#### Light Goose Conservation Order

**Season:** Feb. 7–April 30, 2021

**Limits:** No daily or possession limits

**Hours:** One-half hour before sunrise to one-half hour after sunset

#### Youth Hunting Days

**Season:**

- North Zone: Oct. 24–25
- Middle Zone: Oct. 24–25
- South Zone: Nov. 21–22

**Limits:** Same as during regular waterfowl season

**Hours:** Same as during regular waterfowl season

### ✳ Falconry Seasons

#### Falconry Season for Doves

**Season:** Sept. 1–Dec. 16

**Limits:** 3 daily and 9 in possession, singly, or in the aggregate (any ducks, coots, or mergansers taken by falconers must be included in these limits)

**Hours:** One-half hour before sunrise to sunset

#### Falconry Season for Ducks, Coots, and Mergansers

**Season:** Open during waterfowl seasons (teal, youth, and duck) and Feb. 10–March 10, 2021

**Limits:** 3 daily and 9 in possession, singly or in the aggregate, during the regular duck hunting seasons (including teal and youth seasons) and extended falconry seasons (any doves taken by falconers must be included in these limits)

**Hours:** Sunrise to sunset during the September teal season, one-half hour before sunrise to sunset during the remaining seasons





# MAKE FISHING *a Family Tradition*

HOW TWO FAMILIES ARE BUILDING BONDS  
THAT WILL LAST A LIFETIME

by Andrew Branson | photographs by David Stonner









In today's busy world, families struggle to stay connected with one another. They are bombarded with an almost endless list of opportunities and activities to participate in. However, rather than bringing the family together, many of these activities seem to pull them apart by having some of the members going this way, and others going that way.

Wouldn't it be nice if a family had an activity that everyone could do together; was healthy, fun, and relaxing; and created memories that would last a lifetime? Fishing for the Dockery and the Archer families has done just that. The Dockery family has always fished and it's a way of life for them, whereas the Archer family is relatively new to fishing, but is on its way to becoming a family tradition.

### THE FISHING CULTURE

Fishing is just part of the culture the Dockery family has passed down through the generations, said James Dockery.

"My father and grandfather were fishermen, and I regularly fished with my father while growing up," he said. James valued this family time growing up and wanted to do the same for his family. "When I started my family, I knew that fishing would be a big part of our lives."

James and his wife, Katie, knew from the beginning that fishing was going to be part of their family's life.

"We would go fishing for our dates. It is something we enjoyed and continued to do after marriage and with our children," Katie said.

Their four children, Harley age 22, Brayann age 20, Bowen age 19, and Jolene age 9, all love fishing and know that it brings them together. Harley knows that fishing makes for some good father-and-son time.

"When I was younger, my father would take me fishing. I really enjoyed being outside and spending time with him," he said. Harley hopes to create the same memories for his own family. "Fishing has been passed down to me and I am passing it down to my son."

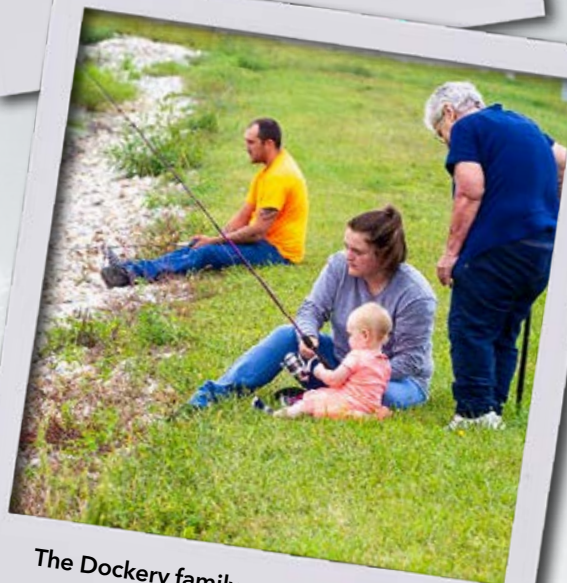
### KEEPING FISHING FUN

To keep the enthusiasm for fishing high in their family when there are so many other activities competing for their children's time, James and Katie work hard at making it fun for the family.

"We love to compete," James said. "First fish, biggest fish, and most fish. Every fishing trip is a mini tournament, but all in fun."

"We like to find new things to do for challenges," Katie continued. "For example, we will take the small kiddie poles to the Mississippi River and only count the fish caught on them. We have caught large carp and catfish this way. Talk about fun fishing!"

Their son Bowen remembers, "We had a little game called 'bucket maid.' The point of the game was you wanted to catch the last fish before you left. If you didn't catch the last fish then you had to carry the bucket home."



*The Dockery family passes fishing down through the generations.*







**Pole-and-line state record for the shovelnose sturgeon. Caught in 2001, weighing in at 4 pounds.**

## FISHING TRIPS, FAMILY MEMORIES

James and Katie work fishing into their family trips, too. Fishing bonds this family together and creates wonderful, shared memories.

"Fishing is a great way to spend time together. We get away and relax," James said.

"We have gone fishing for family vacations, long weekends, and just for an evening for so many years that it has become an integral part of our life," Katie added.

Fishing offers a unique set of experiences not found in many other activities. "It's a whole different level of excitement when you feel that fish pulling on your pole," said Brayann.

All the time the Dockery family has put into fishing has resulted in a few records. While anyone catching a fish worthy of a state record is quite an achievement, having two state record holders in one family is rare. James holds the pole-and-line state record for the shovelnose sturgeon by catching a 4-pound fish in 2001. In 2017, son Bowen was awarded the alternative-method state record for a 1-pound, 3-ounce green sunfish that he caught on a trotline. The love of fishing for the Dockery family is far reaching, and sharing this passion comes naturally. Youngest daughter Jolene described passing the tradition to the next generation as one of her favorite fishing experiences.

"Taking my 2-year-old nephew fishing — he loves to hold the fish and pose for a picture," she said.

"To be honest, when it comes to fishing, I don't know a stranger. I will talk to, and fish with, anyone who is willing," James said.

## THE NICEST PEOPLE

Anne Archer and her two sons, Collin and Jake, love to fish as a family. It wasn't Anne that introduced her sons to fishing, it was her father.

"My dad always loved hunting and fishing, but I didn't take to it," Anne said. "Not until, however, he introduced it to Collin. From that moment on, I had to appreciate fishing because of the joy it brought to my sons."

Collin took to fishing immediately, and from that first experience he was hooked for life. "The first day he took me fishing at age five, I loved it," Collin said. "The first day I fished, I caught and held a 22-pound common carp."

"Every birthday party I have had since my fifth birthday, I have kindly asked for fishing lures or fishing gear, rather than toys," he said. "Mom makes fishing activities at my parties, and we pass out mini tackle boxes with gummy worms/fish inside as party favors."

Anne fosters Collin's love for fishing, but seeks out help from others when necessary.

"I cannot unhook a fish, and I barely can hold the fish. Collin takes care of that," she said.

Collin likes that his mom helps him develop his passion for fishing. "My mom signed my brother and me up for free MDC fishing classes at the Busch Wildlife Area a few summers back," he said.

Anne appreciates that others also offer to help her boys have a good fishing experience. "You always meet the nicest people when you go fishing," she said. "Anytime their rod gets tangled, someone is always there ready to help us, so we are grateful for the exposure of kindness in others."



**Alternative-method state record for a 1-pound, 3-ounce green sunfish caught on a trotline.**



The Archers started a new family tradition, and are creating wonderful memories.



### LIKE BIG BROTHER

Little brother Jake likes to fish with his family, but really started getting interested because of his brother's passion.

"It's fun when I catch a fish," he said. "It's exciting to watch them put up a good fight. I tried to catch a carp and my pole fell out of my hand and into the water. The next thing I see is my grandma jumping in the water to get my pole back."

Jake finds fishing with the family fun even when he doesn't have a pole in his hand, Anne said. "One time, when Collin and Jake were younger, they were with my parents and Jake gathered a bunch of worms and created a worm family and named them all after us, like this one is me, this one is brother, this one is mommy, and this one is grandpa."

Fishing creates some wonderful memories for the Archer family, and Collin already has plans for the future. He has fished in both fresh and saltwater, and wants to catch a state record or world record fish. Even at his young age, Collin knows that his passion for fishing shouldn't end with him.

"I want to pass it down to my own child or children."

### ESCAPING THE HUB-BUB

The Dockery and Archer families work hard to make fishing important.

"Fishing allows us to escape the hub-bub of life, and we can use the time to reflect on life and all of its twists and turns," James and Katie said.

"I believe fishing is educational," Anne said. "Fishing is about bonding together, and is a beneficial habit for my children's overall development, versus electronics."

Although they come to the tradition of fishing from different places, both families have found the same benefits from making memories outdoors. For Bowen Dockery, spending time fishing with family has left him with much more than a stringer of fish.

"There are just so many great memories from fishing with my family that it just makes me happy whenever I can cast a pole in the water." ▲

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*Andrew Branson is a fisheries programs specialist within MDC's Fisheries Division. A native to southwest Missouri, Andrew has been with MDC since 2005. Andrew spends his free time with his wife and two sons on their small farm south of Jefferson City and fishing Missouri streams.*





## Starting the Tradition

If the fishing tradition doesn't exist in your family, MDC can help you start one that can result in great family moments and memories for generations to come.

For starters, MDC has designated June 6-7 as Free Fishing Days. During these two days, anyone can fish in Missouri without purchasing a fishing permit, trout permit, or trout park daily tag. Of course, other fishing regulations, such as limits related to the size and number of fish taken, still apply — as do trespass laws on private property. More on Free Fishing Days is available online at [short.mdc.mo.gov/ZeR](https://short.mdc.mo.gov/ZeR). The MDC free publication *A Summary of Missouri Fishing Regulations*, which includes regulations, fish identification, and more, is available where permits are sold or online at [short.mdc.mo.gov/Zq3](https://short.mdc.mo.gov/Zq3).

MDC programs and publications can also help with the "where," "what," and "how" of starting a family fishing tradition.

### Where

MDC's free MO Fishing mobile app can help you find the fishing hole nearest you. It also links you to fishing regulations, fish identification, and more. MO Fishing is available for download through Google Play for Android devices or the App Store for Apple devices. More on the app is available online at [short.mdc.mo.gov/ZJZ](https://short.mdc.mo.gov/ZJZ).

### What

If a lack of fishing gear is keeping you from wetting a line, MDC's free Rod and Reel Loaner Program can put the basics — including a rod, reel, and tackle box — in your hands. More than 100 locations around the state, including many libraries, MDC offices and nature centers, state parks, and marinas, participate in the program. For additional details and a list of loaner sites, visit [mdc.mo.gov/RodandReelLoanerProgram](https://mdc.mo.gov/RodandReelLoanerProgram).

### How

If you have the permits, location, and equipment, but lack fishing know-how, MDC's Discover Nature—Fishing (DNF) program offers a series of free fishing lessons around the state. DNF events include instruction on equipment, casting, fish identification, fish handling, regulations, and more. More information on DNF is available online at [dnf.mdc.mo.gov](https://dnf.mdc.mo.gov).



# LIVING WITH WILDLIFE



PHOTO BY CLARK DREXINSTEIN.COM





## LEARNING TO THRIVE WITH WILDLIFE BY YOUR SIDE

by **Lauren Hildreth**

Missourians can adapt to living with wildlife, even this black bear. Taking a look at your house or property from the wildlife's point of view is a great first step in preventing human-wildlife conflicts.



**I**t's a nice Saturday morning, so you decide to drink your coffee on the back porch. Upon opening the door, you see a dark shadow at the corner of the property line. The neighbor's dog got out again, you assume. As you start your trek to return Rufus to his owner, the shadow moves into the light. You realize it's not Rufus. It's a coyote! You holler at the coyote and scare it away. But what if it comes back?

Every day, Missourians encounter wildlife in one way or another. You might feed songbirds and happily watch them through your kitchen window. Or see a squirrel scampering through your front yard, looking for a good place to cache his latest acorn. Seeing these common species don't usually cause concern, but what about the more elusive species? What should you do if you see a coyote? A bear? What about a bobcat? Most of the time, just seeing one of these larger species in your yard shouldn't raise a red flag.

Using some common questions we have received concerning wildlife, we will try to allay your fears and demonstrate that coexisting with wildlife is easier than you might think.

### **I saw a larger wildlife species in my backyard. Should I be scared?**

The answer is usually not at all. As the adage says, wildlife is more scared of you than you are of them. What gets wildlife in trouble is when they lose their fear of humans and that usually begins when they are fed, either intentionally or unintentionally. Bears and raccoons are a great example of this. They are both highly curious and can remember where they got their last easy meal. Once they've learned this behavior, it's difficult to unlearn.



House finch and American goldfinch



Gray squirrel



Raccoon



Black bear



If you see wildlife in your backyard, the main thing to consider is access to food. This could mean making a bird feeder harder to reach or removing it completely. Do you feed your dogs outside? Make sure that food is secure or stored inside. Try and look at your home and property from the viewpoint of wildlife. You may be surprised what you find.

### What if a coyote (or other wildlife) isn't afraid of me? What should I do?

Wildlife, especially in urban areas, have lost their fear of humans. But this isn't necessarily cause for concern. If you think about the situation from the wildlife's view, they have no negative interactions with humans. They have human food readily available to feast on, they aren't being shot at, and they see you every day. Just like you're not concerned when you see your neighbor pull into their driveway, urban wildlife has accepted you as part of their environment. You are a given to them.

Even if it seems inevitable that some of our wildlife will lose their fear of humans, there are still steps you can take to help. Once again, look around your house and property for food sources. Fence areas, like gardens, to help deter wildlife. Add a hot wire to a fence for added deterrent. You can find helpful information on excluding wildlife around your home on our website at [short.mdc.mo.gov/Zho](http://short.mdc.mo.gov/Zho).

### How big can coyotes get? And when are they more active?

Coyotes don't grow as large as other canid (dog) species.

"A big coyote in Missouri is 35 pounds versus a wolf is 120 pounds," said Josh Wisdom, MDC damage biologist.

Keep this size in mind if you know you have coyotes in your area. Keeping domestic dogs leashed and supervising small children will deter a coyote from getting bold.

You will hear coyote calls peak in March during breeding season and during the summer when pups are learning how to hunt. This formative

Bobcats are common throughout Missouri but are quite elusive. If you see one in your neighborhood, that's a special moment that not many people have experienced.



Bobcat

Coyotes can lose their fear of humans, but one way to combat that is to introduce them to a negative experience with humans. If you see a coyote, scare a coyote.



Coyote





Nine-banded armadillo



Big brown bat

period is a great time to prevent issues into the future. If you see a coyote, scare a coyote. Bang pots and pans, spray them with water, throw sticks, do what you can to give them a negative interaction with humans. For more information, visit [short.mdc.mo.gov/ZhJ](https://short.mdc.mo.gov/ZhJ).

### I heard armadillos carry leprosy and bats carry rabies. Is that true?

Yes, both are true. Armadillos naturally have the bacteria that causes Hansen's disease (leprosy), but according to the Centers for Disease Control and Prevention (CDC), the risk of spreading it to humans is very low. If you have to handle an armadillo, wear gloves.

Most bats don't have rabies, but it is important to take the necessary precautions just in case. If you know you have bats in your home, determine where the bats are entering and set up a one-way door so they can't get back in. It is important you don't set up this exclusion until the fall. Bats breed during the summer and you don't want pups getting stuck in your attic.

Rabies is transmitted by a bite or through saliva in an open wound. You can't get rabies from just seeing a bat outside or in your attic. However, the CDC recommends if you wake up to a bat landing on you or find a bat in a room with an unattended child, try to safely capture the bat and have it tested. This is erring on the side of caution since bat teeth are small and sometimes hard to see their bite marks.

Many wildlife species can be found in our backyard but there's no reason to be fearful of their presence.



Red fox



Chipmunk



Raccoon



By making sure bats don't roost in your house, you can keep your family safe from bat rabies. Also, never pick up a bat you see on the ground. Bats serve a very important ecological role — they eat lots of insects, especially mosquitos. You can provide a place for these bats to live by building a bat house for your yard. This way, you get the important benefits of having bats around but keep them out of your house.

### A goose was looking at me funny. Will it attack?

Canada geese can be aggressive when humans get close to their nests or goslings. Just like with other wildlife species, if you give them space they will leave you alone. They aren't just going to charge at you for no reason.

If you have geese in your neighborhood that are a nuisance, there are some steps you can take to make the area less attractive to geese. Create barriers along ponds and lakes to make water access more difficult. This should mean increasing the slope of the pond bank or allowing vegetation to grow thicker on the bank. Also, transition the plant community in the area to ones that are less palatable to the geese. For more information on controlling Canada geese, visit [short.mdc.mo.gov/Zqi](https://short.mdc.mo.gov/Zqi).

Wildlife species are highly adaptable. That fact makes living next to wildlife an ever-changing adventure. If a technique you've been using to happily coexist with wildlife suddenly stops working, try something new. Seeing wildlife in our backyards, even if it's only a squirrel or a chipmunk, connects us with nature around us. Living with wildlife is something to cherish, not to fear. ▲

*Lauren Hildreth is a program supervisor for the Wildlife Division. In her free time, she enjoys exploring Missouri's outdoors with her family and dog.*



After goslings hatch, adult geese lose their flight feathers while the goslings grow into theirs. This time of the summer can cause problems for landowners as the birds literally can't fly away.



The male goose typically defends his mate by spreading his wings and hissing. Sometimes they will jump up and nearly land on passerbys. Stand your ground and remember his honk is far worse than his bite.

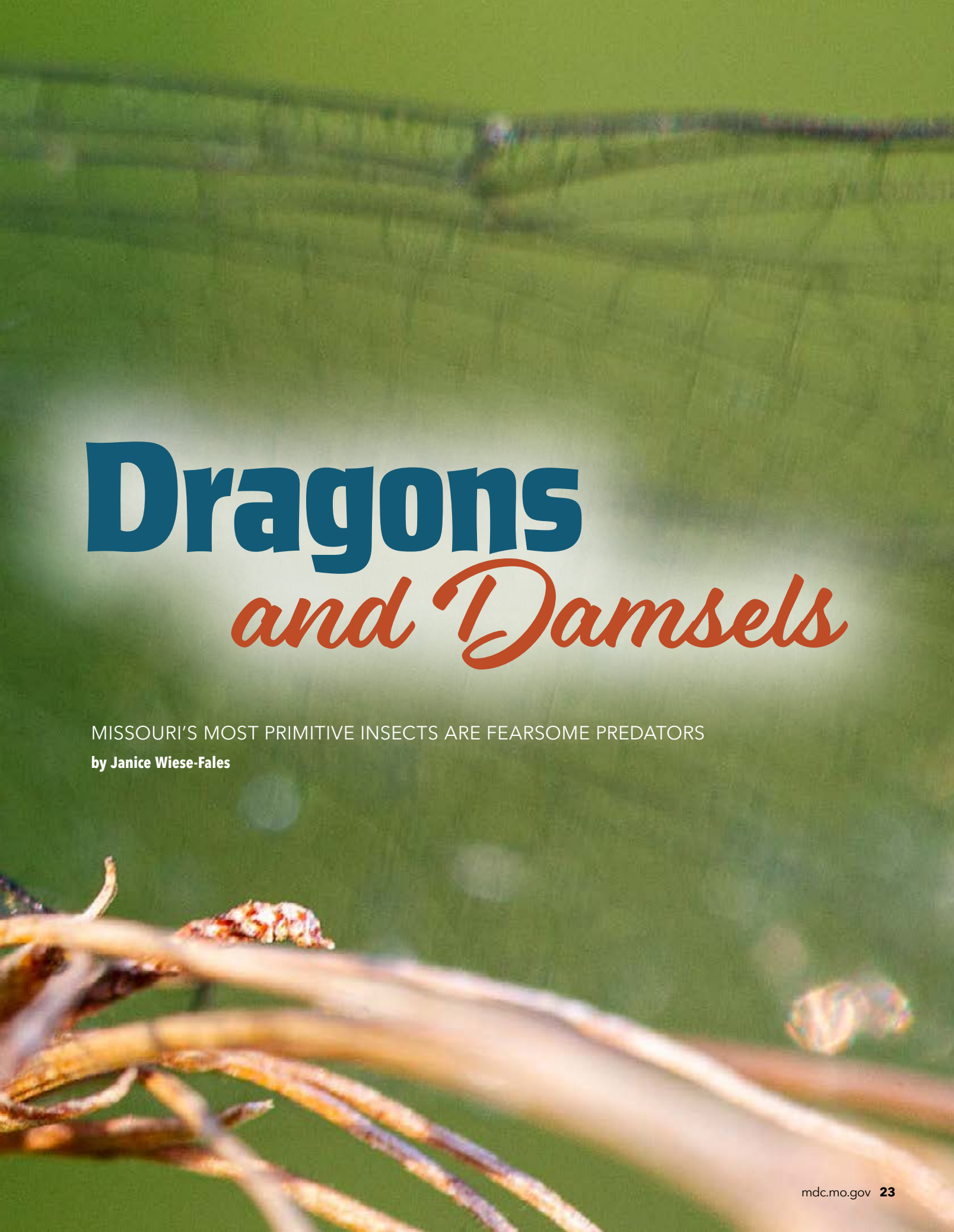




Blue dasher

PHOTOGRAPH BY  
NOPPADOL PAOTHONG



The background of the page is a photograph of a green field. In the foreground, there are several thin, brown sticks or branches. One stick has a small, colorful dragonfly perched on it. Another dragonfly is visible in the background, flying over the field.

# Dragons *and Damsels*

MISSOURI'S MOST PRIMITIVE INSECTS ARE FEARSOME PREDATORS

by Janice Wiese-Fales



**G**lossamer wings, iridescent colors, and dazzling maneuverability make dragonflies and damselflies some of the world's most recognizable and intriguing flying insects.

In 2005, MDC reported that 136 species out of 450 in North America made their home in Missouri. MDC Aquatic Resource Scientist Brett Landwer said that number has increased in the ensuing years, as additional species of the insect order Odonata — dragonflies (Anisoptera) and damselflies (Zygoptera) — continue to be reported.

"Some are migrants or vagrants that don't regularly breed in Missouri. Odonata are among our most primitive insects," Landwer said, explaining that they are unable to fold their wings back over their long abdomen, an evolved characteristic common to most winged insects.

The length of the dragonfly's abdomen helps balance the weight of its large wings and makes it more aerodynamic.

Dragonfly families often are identified by colorful names based on various characteristics, including clubtails, petaltails, biddies, darners, skimmers, and cruisers.

"Missouri is home to the gray petaltail, a dragonfly from one of the most primitive groups," Landwer said.

Gray petaltails vary little from dragonflies that filled the sky during the Carboniferous Period 300 million years ago. While most dragonfly and damselfly larvae are aquatic, petaltail larvae can live out of the water in wet leaves around sunny, shallow forest pools where adults lay eggs. A large dragonfly, the petaltail's coloring — all grays and blacks — gives it excellent camouflage on tree trunks.

"The common whitetail skimmer gets my vote for the most common dragonfly in Missouri," Landwer said.

As its name suggests, the male common whitetail has a chalky white, uniquely flat abdomen, which it uses to warn the competition out of its flooded habitat and pond territory. Females have brown wingtips and brown abdomens.



Ebony jewelwing

"The most easily recognized damselfly is probably the ebony jewelwing. It has black wings and a metallic blue body," Landwer said, and added that the American rubyspot damselfly also is a large and colorful damselfly easily identified by the red spot at the base of its wings.

### Dragon or Damsel?

Many people, including some in the scientific community, consider dragonflies and damselflies to be virtually the same winged critters, but there are some identifiable differences.

Dragonflies are generally a little brawnier than damselflies and have large eyes that touch or nearly touch. Damselfly eyes are separated, appearing on the sides of their heads.



Narrow-winged damselfly

Halloween pennant dragonfly



Due to the broadness of their wings, dragonflies are more efficient flyers than damselflies. Damselflies' smaller, teardrop-shaped wings are equal sized, held together above the abdomen when at rest. Additionally, dragonfly eyes touch, or nearly touch, and damselfly eyes are located at the sides of their heads.





Blue dasher

Relative to body size, dragonflies have larger eyes than any animal except the giant squid. Made up of nearly 30,000 optical units, or facets, called ommatidia, their eyes can detect the slightest movement in all directions simultaneously, making them deadly hunters.

When at rest, dragonfly wings are held horizontally. Most damselflies hold their wings together above their thorax and abdomen when they're taking a break. Spreadwing damselflies are an exception.

Dragonflies also are much more robust navigators with larger, more broad-based rear wings. Damselflies' smaller wings are equal sized with a teardrop shape. Their smaller flight muscles make their progress a little more irregular.

### Fearsome Predators

In flight, dragonflies form a sort of "basket" with their hairy legs and feet to catch prey. Flying at speeds up to 30 miles per hour, they easily hover and make 360-degree turns to both capture prey and avoid becoming prey. Mosquitoes and other flying insects stand little chance of avoiding a hungry dragonfly.

"Dragonflies can control each of their wings independently while a majority of insects have to pull their entire thorax down to release their wings when they fly," Landwer said of the insect's extreme flight control.

Additionally, a dragonfly's eyes are made up of nearly 30,000 optical units, or facets, called ommatidia, allowing them to detect the slightest movement in all directions simultaneously, adding to their hunting prowess.

"For being such a primitive animal, it's amazing how complex their eyes are," said Amy Meier, MDC Stream Team biologist. "One study showed they were 90 to 95 percent efficient in clearing an enclosure of mosquitoes."

Dragonflies have hinged jaws that open as wide as the width of their head. They use them to clamp onto prey and shred it, sometimes dining in mid-air. The name Odonata is derived from Greek that means "toothed," referring to the dragonfly's serrated teeth. Dragonflies and damselflies pose no danger to humans.

### A Heart Without Romance

Male dragonflies and damselflies recognize same-species females' larval habitat of preference and set up territories to waylay perspective mates.

"Any time a female comes close, she's harassed," Landwer said. "Territory depends on the dragonfly. Hine's emeralds will take over an entire fen and green darners will dominate an entire pond. A blue dasher will set up a territory and patrol it. It perches on weeds with a characteristic 'tail up' posture."

Few dragonflies have courtship rituals. Once a male identifies a potential mate based on her size, coloration, markings, and flight style, he intercepts her from behind with his legs. The male dragonfly subdues the female by grabbing her head behind her eyes with forceps-like anal appendages called cerci. Male damselflies clutch mates behind their heads. This in-air coupling is called tandem linkage.

"Mating is very unromantic," Meier said. "It can injure the female."



Blue dasher dragonflies mating





While linked, the male's sperm originates from his ninth abdominal segment while his reproductive organ is in the second segment. He has to bend his abdomen up to transfer sperm.

The female shows her consent — sometimes with encouragement from the male — by bringing the end of her thorax in contact with the male's, forming a closed circle. This has been termed the wheel formation, a shape that also bears resemblance to a heart.

Fertilization takes place in the air or a nearby perch. Male dragonflies can scoop the sperm of recent mating predecessors from the female's body and replace it with their own.

"Sometimes mating dragonflies will stay attached until the female lays her eggs so that other males don't mate with her," Landwer said. "Green darners lay eggs in the tandem formation."

Others will stay with the female until she lays her eggs, fending off competitors.

"More primitive species, like darners and petaltails, lay their eggs in aquatic vegetation. Spiketails lay eggs in sand. More advanced species lay their eggs directly into the water," Landwer said.

Females lay thousands of eggs over a large area.

### Life Cycle: Hatch to the Split

Many dragonfly eggs hatch in two to five weeks and others won't hatch until the following spring. Some damselflies can have several generations in one season.

"Dragonfly and damselfly larvae are referred to as nymphs," Landwer said. "But I am partial to the older term naiads because they live in the water."

"Dragonfly nymphs have a rectal gill chamber. They use it to propel themselves by expelling water. Damselfly nymphs have tracheal gills. They exchange gases across the surface of their gills and swim by undulating side-to-side."

"Some dragonfly larvae can be fairly large. Biddies [also known as spiketails] are terrifying because they are about as big as your thumb and have a mask of jagged teeth covering their faces," Landwer said.

Larvae will eat anything they can catch and subdue — baby tadpoles and salamanders, microcrustaceans, small fish, and other aquatic larvae, including mosquitoes. The lower lip of the nymphs is a hinged appendage that is snapped outward with deadly precision to snag or spear prey. Dragonflies and damselflies are the only insects with this ability. A close-up look at them in action can be frightening.

"Dragonfly larvae molt eight to 13 times, depending on the species. The Hine's emerald takes four years from egg to adult. They have a slow metabolism. They live in crayfish burrows alongside their most deadly predator," said Landwer. "Spot-winged gliders can go from egg to adult in about 30 days because they live in small bodies of water that may dry up."

The phases between molts are called instars. The final instar crawls out of the water and literally splits open, with the adult body emerging from the back of the larval shell like a telescope, often at night. Newly emerging adults are called teneral and are



soft and flexible. Their wrinkled wings spread out and begin to harden over a couple of hours.

“It’s amazing. They can basically live as adults inside their larval skin,” Landwer said.

In the morning, the newly emerged adults fly to a treetop to completely harden and then forage for a couple of weeks before returning to water to breed.

Adult North American dragonflies generally live from two to four weeks; however, a lifespan exceeding 50 days has been recorded for the giant spreadwinged damselfly.

### Sometimes Tenuous Existence

Landwer said that dragonfly larvae are not as sensitive to pollution as a lot of other aquatic insects, but some species have very specific habitat requirements that make them vulnerable to environmental changes.

Nine dragonfly species are listed as Species of Concern in Missouri and one, the Hine’s emerald, is listed as federally endangered. A large dragonfly with a 3-inch-plus wingspan, Hine’s have bright green eyes and a dark body with yellow stripes. Once believed to be extinct, the species was rediscovered in Illinois and Wisconsin, and a small population was found in the southeastern Ozarks in 1999. Since then, by investigating similar habitat conditions, additional populations have been identified in Missouri.

“Dragonfly larvae consume larval mosquitoes and adults eat mosquitoes and other insects. I truly believe, hands down, that dragonflies are the most beneficial insect for humans,” Meier said. “Anything we can do to preserve their habitat helps us.” ▲

*Janice Wiese-Fales is a freelance writer who lives in Howard County and enjoys camping, hiking, floating, and photographing in Missouri’s wild outdoors.*



## Learn More and Participate

### Dragonflies Thermoregulate

Like most insects, dragonflies are ectotherms, which means they are at Mother Nature’s mercy when it comes to temperature regulation. However, these amazing insects have developed a couple of workarounds. A rapid whirring of their wings can actually warm them up. They also can tilt their large wings to soak up the sun’s rays or deflect the sun’s heat.



### Some Dragonflies Migrate

Although there is still a lot to discover about dragonflies’ migratory habits, it is known that a few dozen North American species migrate south in great numbers, creating a magnificent spectacle. Northward spring migrations have been less documented. The best-known migration is that of the common green darter.

All green darners have a bright green thorax. Immature males and females have red or purple abdomens. Mature females’ abdomens are reddish-brown with males sporting blue abdomens.

### Citizen Science

The Xerces Society is asking citizen scientists to help them observe dragonflies on the move. To participate, visit [migratorydragonflypartnership.org](http://migratorydragonflypartnership.org).



# Get Outside

in JUNE → Ways to connect with nature



## Sound of Summer

Annual **cicadas** begin to sing this month. Their sounds are familiar and serve as the unofficial theme song of summer. In addition to their distinctive sounds, they make excellent fishing bait.



## Bring the Prairie Home

Celebrate National Prairie Day — June 6 — by bringing the prairie to your own backyard. Plant some **butterfly milkweed**, **New England asters**, or **purple coneflowers**. For more information, visit *Native Plants for Your Landscape* at [short.mdc.mo.gov/Zc8](http://short.mdc.mo.gov/Zc8).



## Berry Bonanza

If you're a fan of berries, you're in luck! **Gooseberries**, raspberries, and mulberries begin ripening in June. Get out and get pickin' before the birds, bugs, and other animals beat you to them. Once you haul your harvest home, look for recipes at [short.mdc.mo.gov/Z3U](http://short.mdc.mo.gov/Z3U).

Gooseberries picked when they're still green have the punchiest sour flavor. The ripe purplish berries lack the tangy tartness.

### Natural Events to See This Month

Here's what's going on in the natural world.



Bobcat kittens are born through the month



Prickly pear cactus blooms



Catfish young leave nests



## Hopping Along

American toad **tadpoles** turn into toadlets and leave the water, sometimes in great numbers. Though toads are large, these emerging **toadlets** are among the smallest newly transformed amphibians. Keep a lookout for these diminutive hoppers.



American toad tadpole



American toad toadlet



Register now for

**FREE** *and*  
**DISCOUNTED**  
**LANDOWNER**  
**PERMITS**

More than 90 percent of land in Missouri is privately owned, and landowners play a key role in maintaining healthy deer and turkey numbers by providing essential habitat.

**Missouri resident landowners with 20 or more contiguous acres and nonresident landowners with 75 or more contiguous acres may receive free or discounted deer and turkey hunting permits by registering their properties in MDC's new Landowner Permit Application.**

Each qualifying landowner and each member of their qualifying household must apply to receive free or discounted permits. Submissions remain valid for three years from the original entry or from the last update.

Learn more and apply securely online at **[mdc.mo.gov/landownerpermits](http://mdc.mo.gov/landownerpermits)**

To request a paper application:

**Email** [permits@mdc.mo.gov](mailto:permits@mdc.mo.gov)

**Call** MDC Permit Services at 573-522-0107, select option 1

**Mail a request to** Missouri Department of Conservation, Permit Services – Landowner, PO Box 180, Jefferson City, MO 65102-0180.



American robins

## Birds Abuzz

Birds are active this month, carrying food back to the nest for their babies. Some are getting their young ready to leave the nest. Watch for these fledglings, but do not disturb these immature animals. Enjoy the show our feathered friends provide from a distance. Curious onlookers can disturb nesting birds.



Northern watersnakes bask near water



Wild turkey hatch at its peak



# Places to Go

## OZARK REGION

### Twin Pines Conservation Education Center

Heritage skills, forestry past, and native gardens highlight area

by Larry Archer

✱ With a name inspired by a blanket, and beds that regularly attract visitors, it's understandable if one were to confuse Twin Pines Conservation Education Center (CEC) with a cozy Ozark inn.

Located in Shannon County just east of Winona, Twin Pines CEC is named for a regional style of coverlet — a type of bedspread — that incorporates the area's short-leaf pine trees in its design, said Reva Dow, the center's manager.

The connection to this area craftwork also influences two of the center's primary focuses: heritage skills — traditional outdoor skills associated with the Ozarks — and the area's connection to the forest industry.

"One of the unique things about the facility is that we are able to tie Missouri's fish, forest, and wildlife into those heritage practices," she said.

With an exhibit building originally designed as a forest heritage museum, Twin Pines CEC continues to highlight the area's forestry past, but perhaps one of its most popular features is its native flower beds, she said.

"We do have people who come just to look at the beds," she said. "We do have a plethora of pollinators come through due to the size of our native beds."



"There's a lot of draws to the area, whether it be some of our springs — like Big Spring or Ally Spring or Blue Spring — or you have the Jack's Fork and the Current rivers, you have Rocky Falls just down the way, and we also have Peck Ranch."

—Twin Pines CEC Manager Reva Dow

MAIN: NOPPADOL PAOTHONG; INSET: DAVID STONNER; WARBLES: © JOAN EGERT | DREAMSTIME.COM





Surrounded by pine trees and native flower beds, Twin Pines CEC provides a unique mix of heritage practices and forestry history.



## TWIN PINES CONSERVATION EDUCATION CENTER

consists of 442.2 acres in Shannon County. From the junction of Highway 19 North and U.S. Highway 60, take Highway 60 east 1.3 miles.

36.995, -91.3032

[short.mdc.mo.gov/ZnT](http://short.mdc.mo.gov/ZnT) 573-325-1384

### WHAT TO DO WHEN YOU VISIT



**Archery** Unstaffed range with targets of varying distances



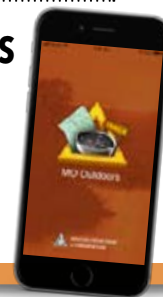
**Birdwatching** Included in the National Audubon Society's Current/Jack's Fork Watershed Important Bird Area ([short.mdc.mo.gov/ZcC](http://short.mdc.mo.gov/ZcC)). Included in the Great Missouri Birding Trail ([short.mdc.mo.gov/ZnS](http://short.mdc.mo.gov/ZnS)). The eBird list of birds recorded at Twin Pines CEC is available at [short.mdc.mo.gov/Zn5](http://short.mdc.mo.gov/Zn5).



**Trails** One trail loop with spurs combining to total 2.9 miles.

### DISCOVER MO OUTDOORS

Users can quickly and easily find outdoor activities close to home with our free mobile app, MO Outdoors. Available in Android or iPhone platforms at [mdc.mo.gov/mooutdoors](http://mdc.mo.gov/mooutdoors).



### WHAT TO LOOK FOR WHEN YOU VISIT



Black bear



Yellow-throated warbler



Painted lady



Five-lined skink





## Eastern Kingbird

*Tyrannus tyrannus*

### Status

Common summer resident

### Size

8½ inches

### Distribution

Statewide



### Did You Know?

A king must have a crown, and the eastern kingbird is no exception. This king wears a crown of yellow, orange, or red feathers, but conceals it until encountering a predator. The scientific name *Tyrannus*, meaning "tyrant, despot, or king," refers to kingbirds' aggression toward each other and other species.

**E**astern kingbirds are found in grassland or agricultural areas with scattered trees, woodlands, savannas, forest edges, and city parks. They build their large, thick-walled, sturdy cup nests with twigs, grass, and even human trash, often near water. Since the 1960s, populations have decreased by 40 percent due to habitat loss and insecticides.



### FOODS

The eastern kingbird is an aerial hunter, snatching large flying insects, like wasps, beetles, and grasshoppers, on the wing. Using bristly feathers near its bill, the kingbird funnels the unsuspecting prey into its mouth. The kingbird returns to its perch where it bangs the insect on a branch and swallows it. A small amount of berries and other fruit are eaten in summer, but kingbirds switch to a diet of mostly fruit while wintering in South America.



### ECOSYSTEM CONNECTIONS

As a member of the flycatcher family, kingbirds serve as a natural check on insect populations, helping control the numbers of a variety of insects.



### LIFE CYCLE

Eastern kingbirds have one brood each year. A typical clutch consists of two to five eggs, incubated in 14–17 days. Hatchlings fledge in 16–17 days. Eastern kingbirds arrive in Missouri the second half of April, and migrate to South America by mid-August to early September.



# Outdoor Calendar

❖ MISSOURI DEPARTMENT OF CONSERVATION ❖



## FISHING

### Black Bass

Impounded waters and non-Ozark streams:  
Open all year

Most streams south of the Missouri River:  
May 23, 2020–Feb. 28, 2021

### Bullfrogs, Green Frogs

June 30 at sunset–Oct. 31, 2020

### Nongame Fish Giggling

Impounded Waters, sunrise to sunset:  
Feb. 16–Sept. 14, 2020

Streams and Impounded Waters,  
sunrise to midnight:  
Sept. 15, 2020–Feb. 15, 2021

### Paddlefish

On the Mississippi River:  
Sept. 15–Dec. 15, 2020

### Trout Parks

Catch-and-Keep:  
March 1–Oct. 31, 2020

Catch-and-Release:  
Nov. 13, 2020–Feb. 8, 2021

## Buy Permits and Permit Card

Buy Missouri hunting and fishing permits from numerous vendors around the state, online at [mdc.mo.gov/buypermits](http://mdc.mo.gov/buypermits), or through our free mobile apps, MO Hunting and MO Fishing. Permit cards are an additional way to show proof of most permits. Buy a new permit card for a one-time fee of \$2 at [mdc.mo.gov/buypermits](http://mdc.mo.gov/buypermits). Buyers can select from four images: bass, buck, bluebird, or mallard duck.



## HUNTING

### Bullfrogs, Green Frogs

June 30 at sunset–Oct. 31, 2020

### Coyote

*Restrictions apply during April, spring turkey season, and firearms deer season.*

Open all year

### Crow

Nov. 1, 2020–March 3, 2021

### Deer

Archery:

Sept. 15–Nov. 13, 2020

Nov. 25, 2020–Jan. 15, 2021

Firearms:

► Early Youth Portion (ages 6–15):  
Oct. 31–Nov. 1, 2020

► November Portion:  
Nov. 14–24, 2020

► Late Youth Portion (ages 6–15):  
Nov. 27–29, 2020

► Antlerless Portion (open areas only):  
Dec. 4–6, 2020

► Alternative Methods Portion:  
Dec. 26, 2020–Jan. 5, 2021

### Elk

Archery:

Oct 17–25, 2020

Firearms:

Dec 12–20, 2020

### Groundhog (woodchuck)

May 11–Dec. 15, 2020

### Pheasant

Youth (ages 6–15):

Oct. 24–25, 2020

Regular:

Nov. 1, 2020–Jan. 15, 2021

### Quail

Youth (ages 6–15):

Oct. 24–25, 2020

Regular:

Nov. 1, 2020–Jan. 15, 2021

### Rabbit

Oct. 1, 2020–Feb. 15, 2021

### Squirrel

May 23, 2020–Feb. 15, 2021

### Turkey

Archery:

Sept. 15–Nov. 13, 2020

Nov. 25, 2020–Jan. 15, 2021

Firearms:

► Fall: Oct. 1–31, 2020

### Waterfowl

See the Migratory Bird and Waterfowl

Hunting Digest or visit [short.mdc.mo.gov/ZZx](http://short.mdc.mo.gov/ZZx) for more information.

## New Elk Hunting Season

MDC will offer Missourians the state's first elk-hunting season in modern history starting this fall. Learn more at [short.mdc.mo.gov/Znd](http://short.mdc.mo.gov/Znd).

For complete information about seasons, limits, methods, and restrictions, consult the *Wildlife Code of Missouri* at [short.mdc.mo.gov/Zib](http://short.mdc.mo.gov/Zib). Current hunting, trapping, and fishing regulation booklets are available from local permit vendors or online at [short.mdc.mo.gov/ZZf](http://short.mdc.mo.gov/ZZf).





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The early bird gets the worm, or for this field sparrow, the caterpillar. What will you discover when you seize a beautiful summer day in Missouri's great outdoors? The possibilities are endless.

📷 by **Noppadol Paothong**

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